

Regional Economic Report
October – December 2022

BANCO DE MÉXICO®

Published–General Purpose

Information published by Banco de México

I. Regional Economic Report

II. Results October – December 2022

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between January 2 and 26, 2023)

III. Final remarks

Information published by Banco de México

Regional Economic Report

- The Regional Economic Report is a quarterly publication that includes Banco de México's indicators and analysis on the trends in economic activity, inflation and business agents' perspectives in Mexico's regions.

- The information presented herein is taken into account by Banco de México's Governing Board as part of the information used to evaluate the economic situation and the forecast for the national economy.

- The economic performance and inflation in the regions during Q4-2022 and the prospects of business agents surveyed between January 2 and 26, 2023 on regional economic activity and prices over the following twelve months are analyzed herein.

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Outline

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(based on data collected between January 2 and 26, 2023)

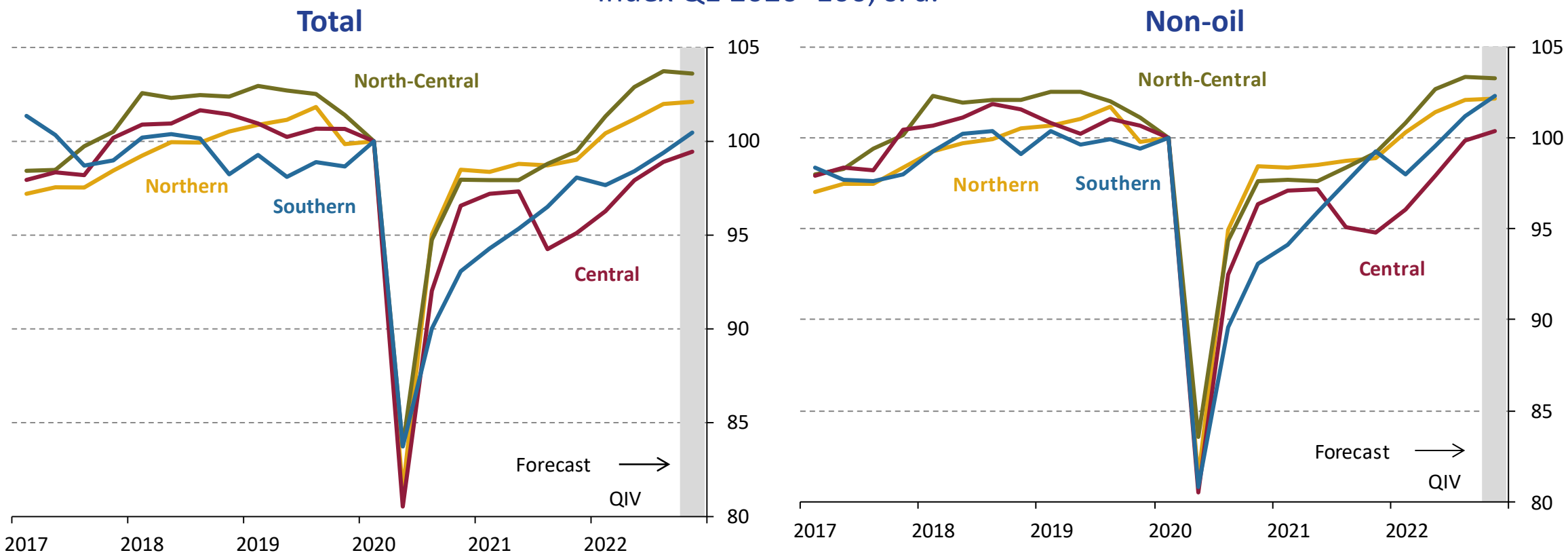
III. Final remarks

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In a context in which aggregate economic activity expanded during Q4-2022, productive activity is estimated to have weakened in all regions, except in the Southern one.

Quarterly Indicator of Regional Economic Activity

Index Q1 2020=100, s. a.



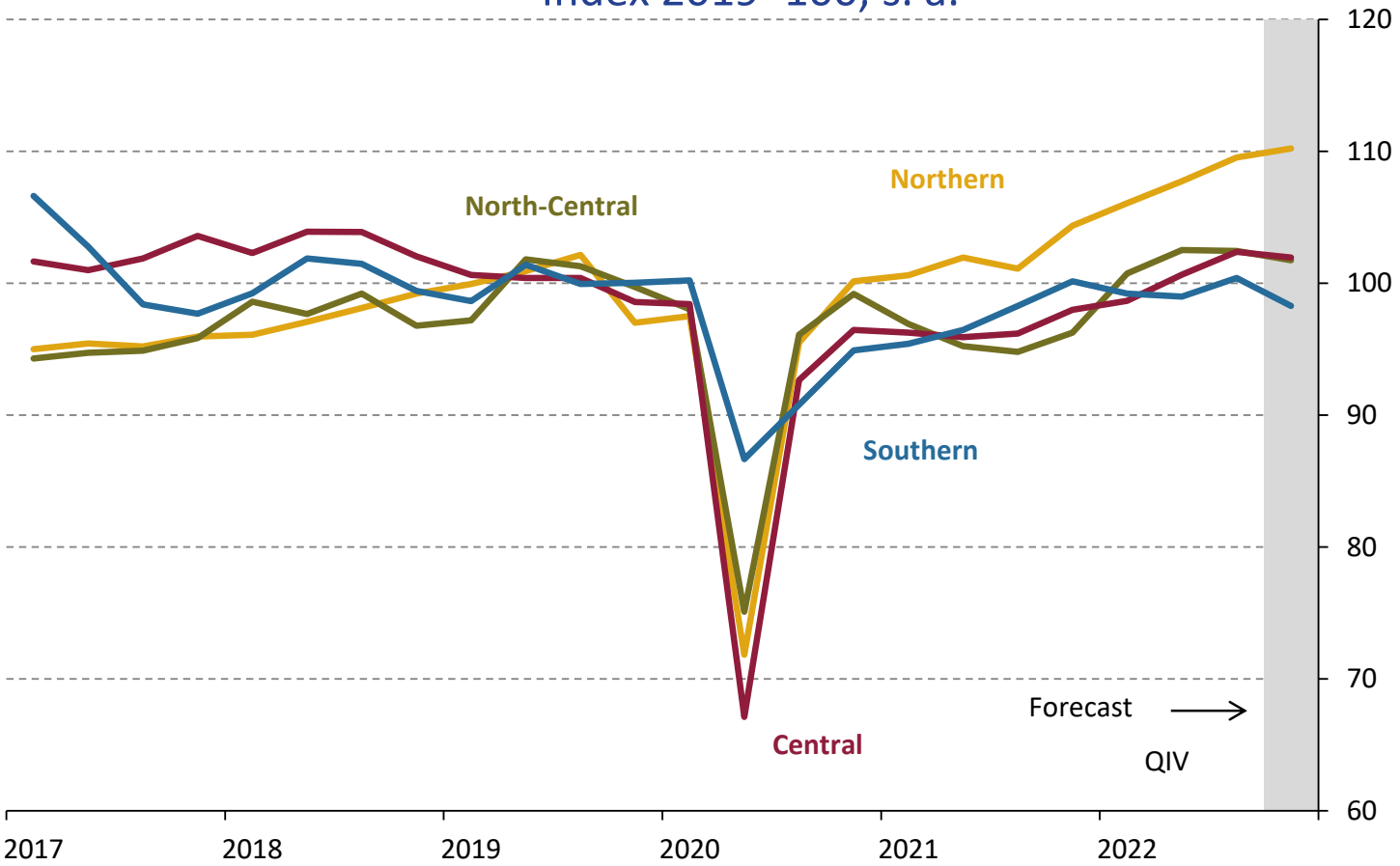
s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of the Quarterly Indicator of State Economic Activity from INEGI.

For Q4-2022, manufacturing activity in the Northern region is anticipated to have decelerated, albeit still remaining at relatively high levels, while in the North-Central, Central and Southern regions, it would have declined slightly.

Regional Manufacturing Indicator

Index 2019=100, s. a.



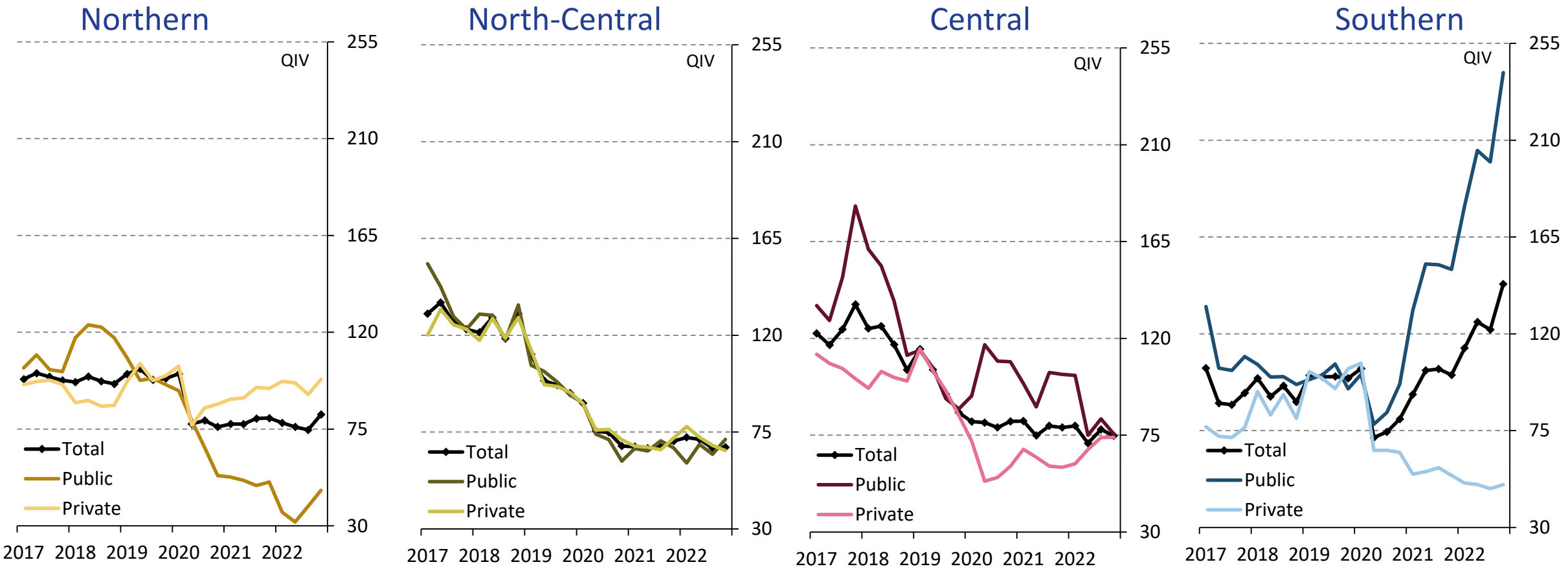
s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of the Monthly Indicator of Manufacturing Activity by State from INEGI.

During Q4-2022, spending on construction expanded in the Northern and Southern regions and, to a lesser extent, in the North-Central region. This was due to a significant rebound in public construction, particularly in the Southern region, as well as to an increase in private construction in the Northern and Southern regions.

Real Value of Production in the Construction Industry by Region

Index 2019=100, s. a.



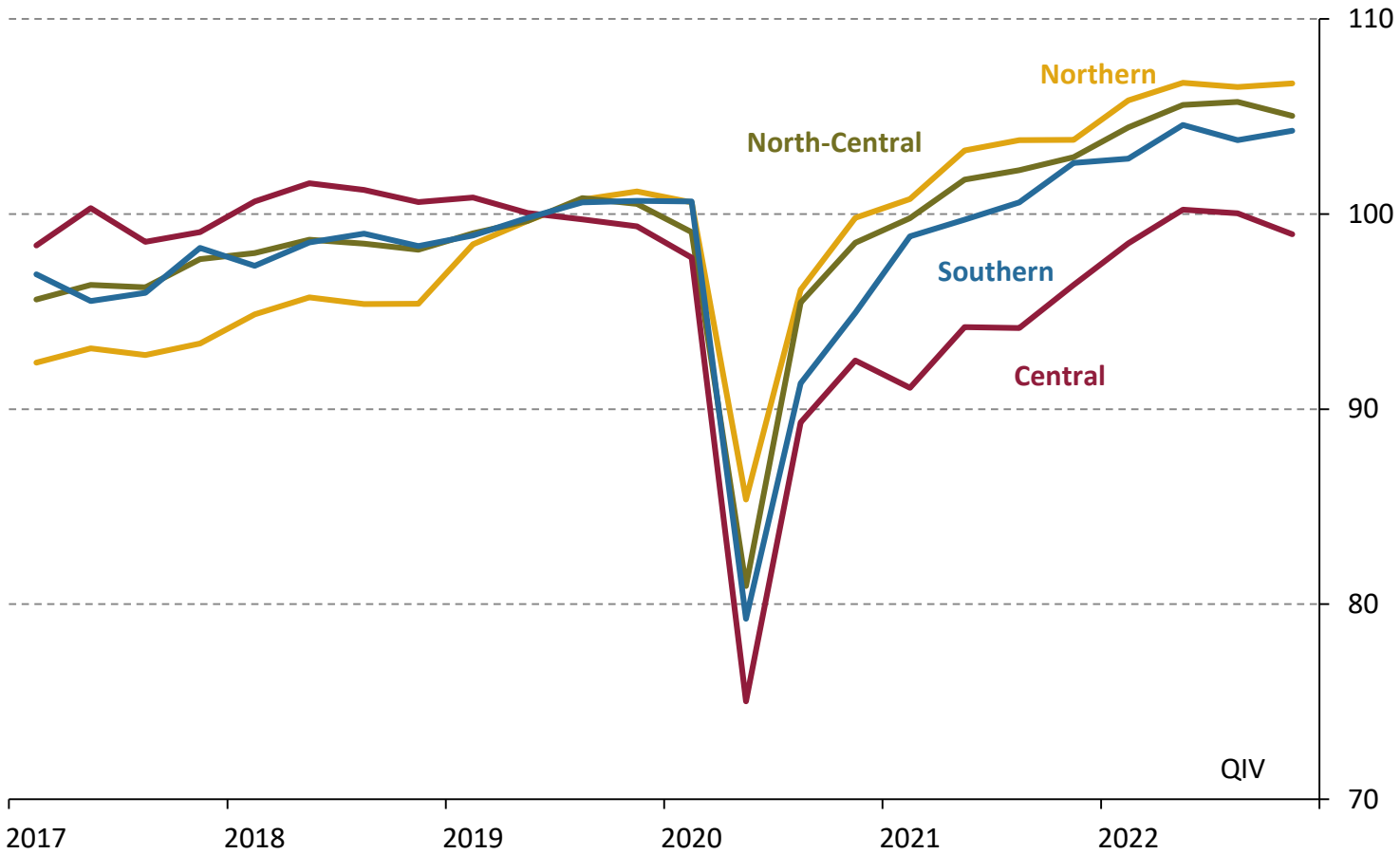
s. a. / Seasonally adjusted data.

Source: Prepared and seasonally adjusted by Banco de México with data from the National Survey of Construction Companies by INEGI.

During Q4-2022, commercial activity expanded in the Northern and Southern regions, after having declined in Q3-2022, while in the Central regions it contracted.

Index of Revenues from Retailers' Supply of Goods and Services

Index 2019=100, s. a.



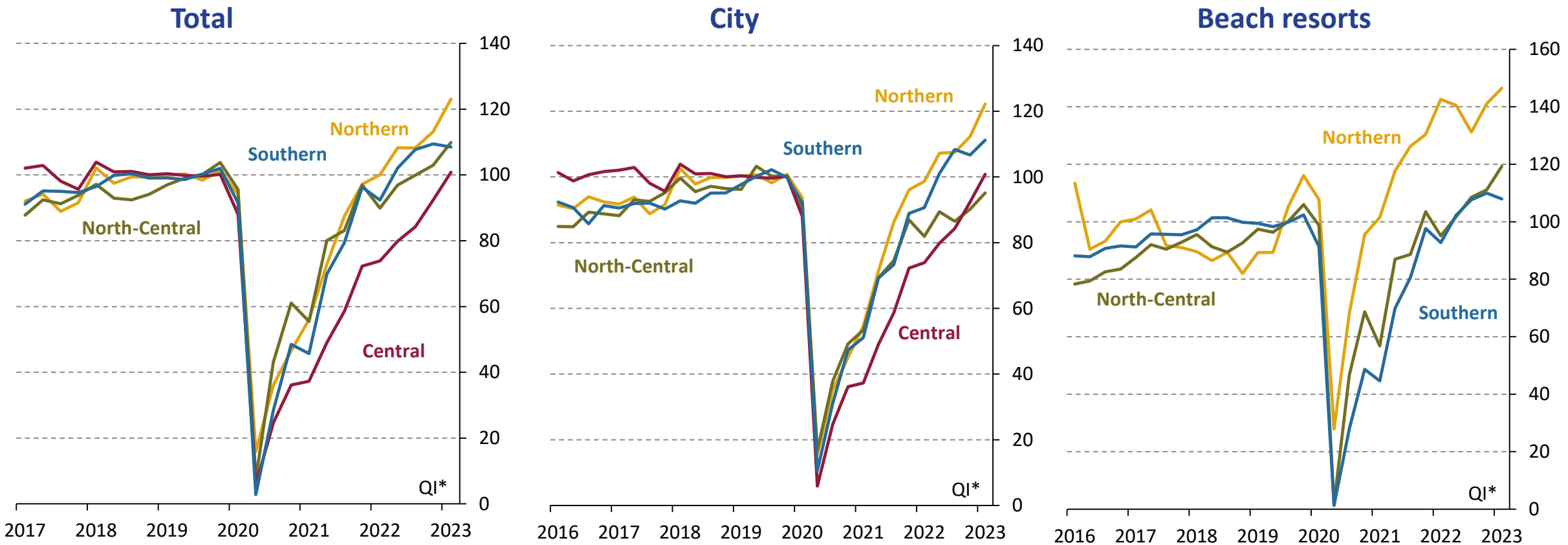
s. a. / Seasonally adjusted data.

Source: Estimated and seasonally adjusted by Banco de México with the series of Revenues of Retailers' Supply of Goods and Services by State from INEGI.

During Q4-2022, tourism continued trending upwards in all regions. The Central region continued recovering with a greater lag than the other regions.

Regional Indicators of Hotel Occupancy

Index 2019=100, s. a.

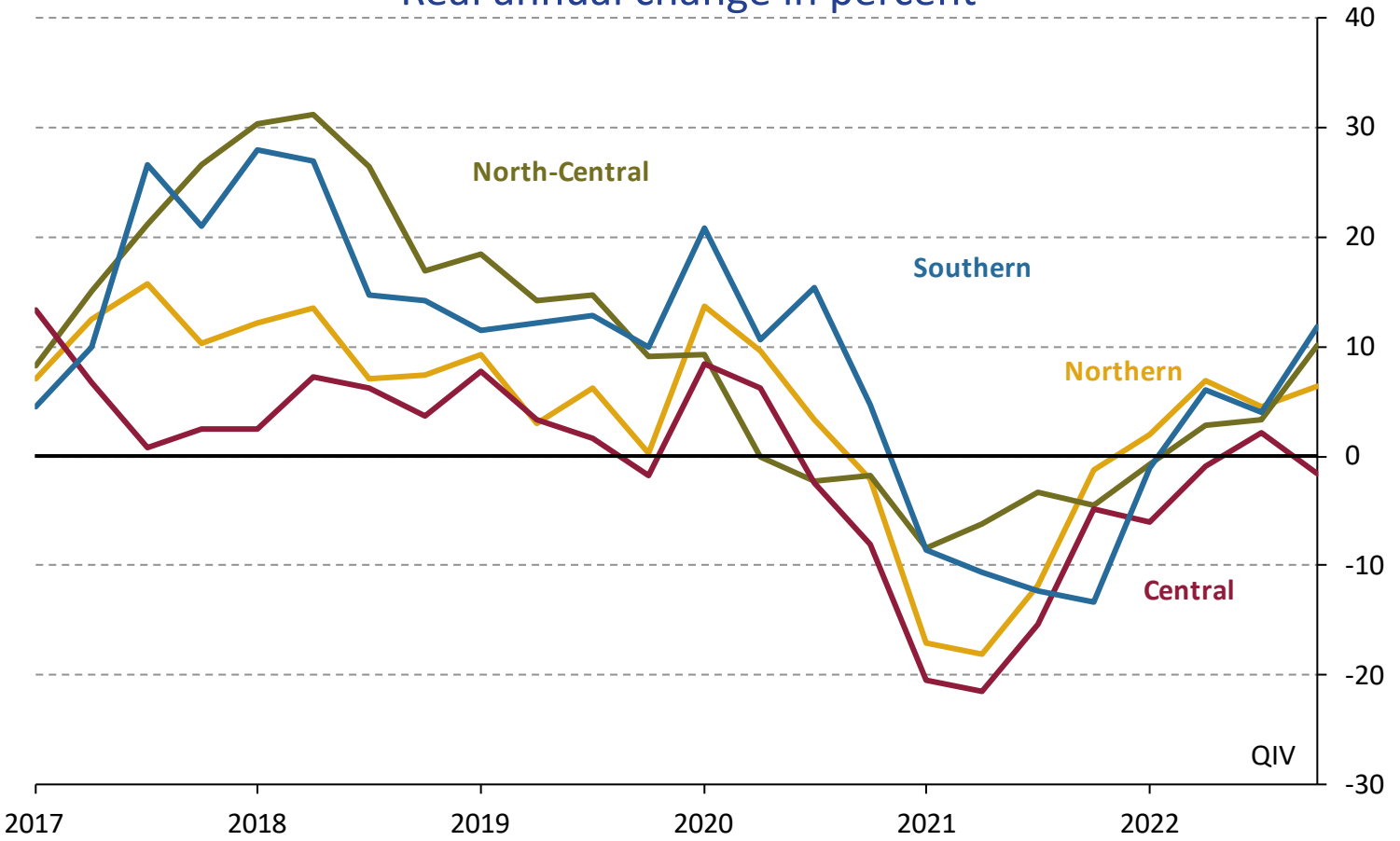


s. a. / Seasonally adjusted data.
*/ Figures as of January 2023.
Source: Prepared and seasonally adjusted by Banco de México with data from the Mexican Ministry of Tourism.

In Q4-2022, outstanding commercial bank credit to non-financial private firms expanded at an annual rate in all regions, except in the Central one, where it decreased.

Outstanding Commercial Bank Loans to Non-Financial Private Firms[1/]

Real annual change in percent



1/ Excludes regulated sofomes subsidiaries of banking institutions and financial groups. The figures for the calculation of the real annual variation are not adjusted for effects of exchange rate fluctuations.
Source: Banco de México.

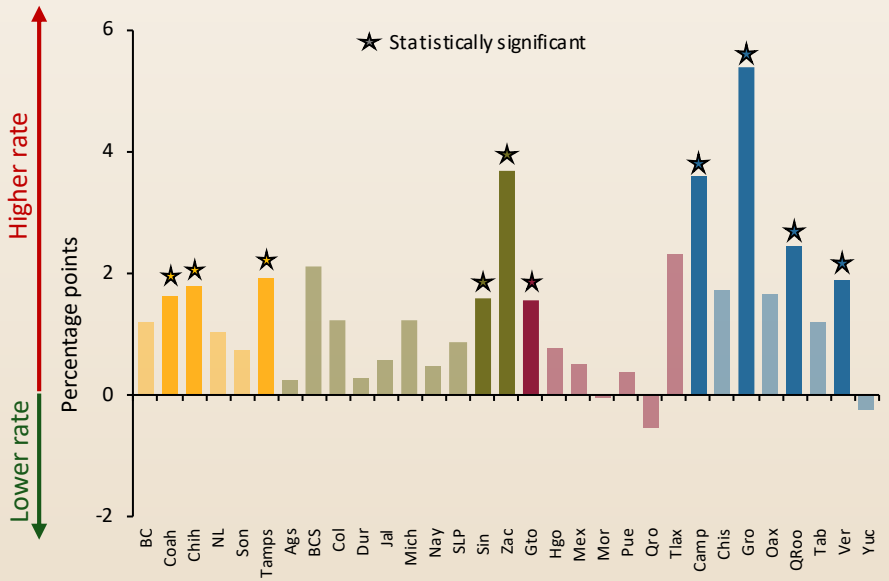
Information published by Banco de México

State Premia on Interest Rates of Bank Loans to Mexican Firms

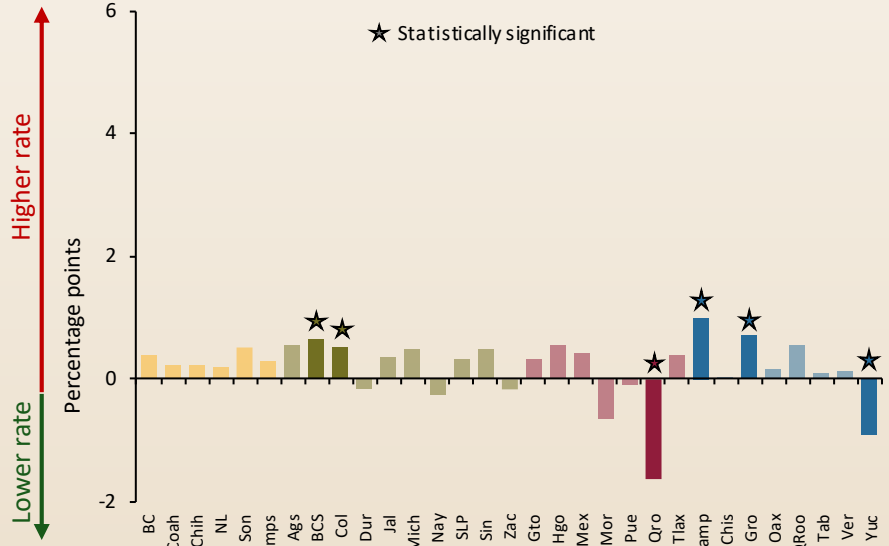
- The box shows certain differences in the interest rates offered by commercial banks to Mexican firms in different states. However, an econometric model suggests that these differences can be mostly attributed to the characteristics of the credits and the financed companies, rather than to the geographic location.

Interest Rate Spreads Relative to Mexico City in Percentage Points

a) Estimates without controls



b) Estimates controlling for loan and firm characteristics



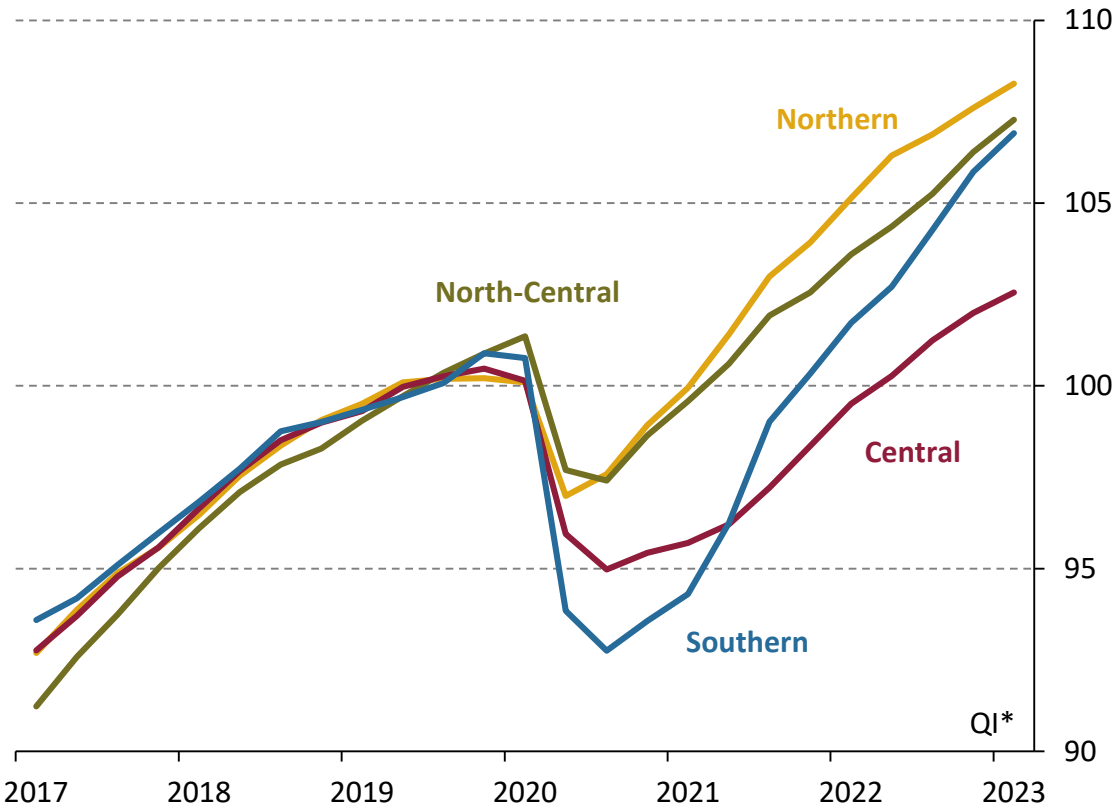
Note: The height of the bars is interpreted as the difference in average corporate interest rates of each state relative to Mexico City (CDMX). These differences correspond to state premia estimated using Equation 1 in the box. The symbol ★ indicates that the coefficients are statistically different from zero at a confidence level of at least 95%.
Source: Prepared by Banco de México with data from the *Reporte R04-C* by the CNBV.

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The number of IMSS-insured jobs continued trending upwards in all regions during Q4-2022.

Number of IMSS-insured Workers

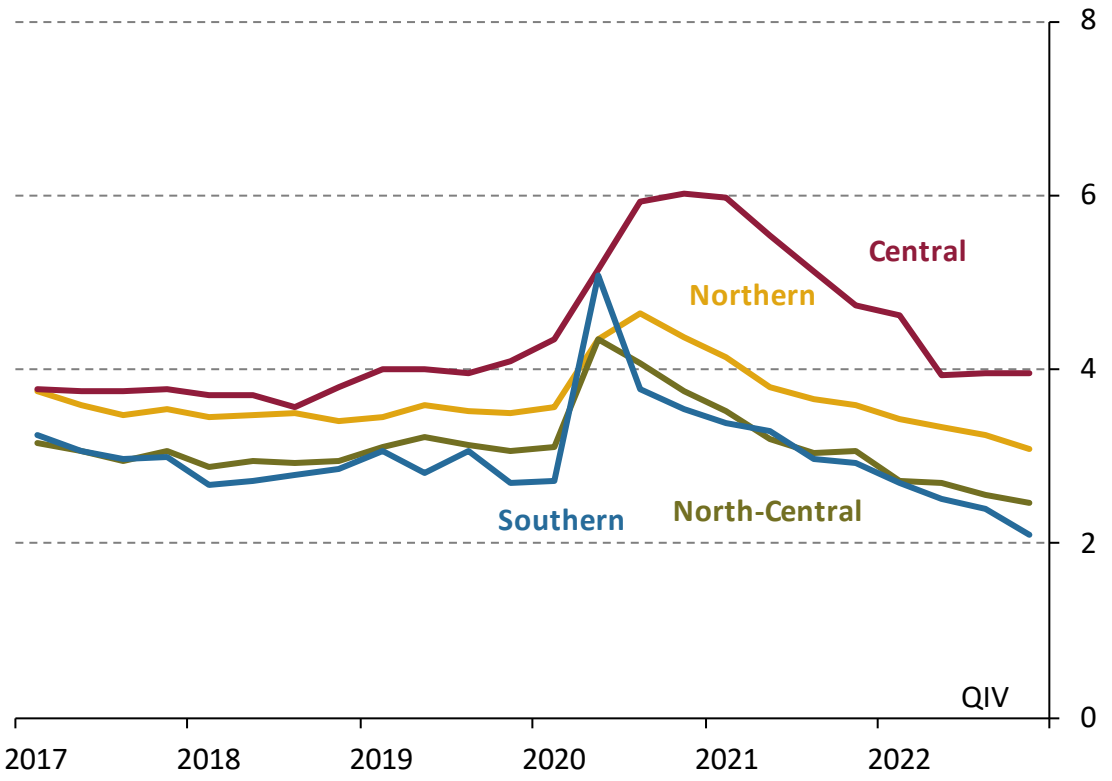
Index 2019=100, s. a. 1/



s. a./ Seasonally adjusted data.
*/ Figures as of February 2023.
1/ Permanent and temporary jobs in urban areas.
Source: Prepared and seasonally adjusted by Banco de México with data from IMSS.

Unemployment Rate

Percent, s. a.

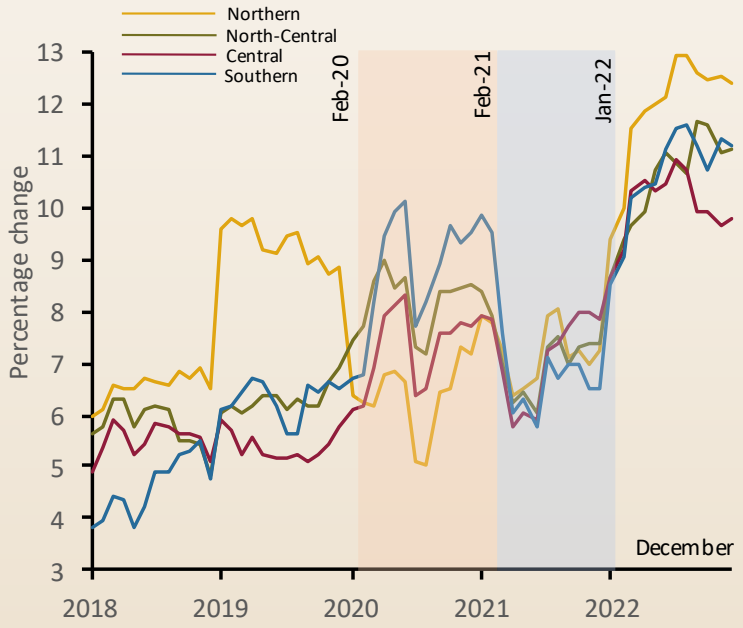


s. a./ Seasonally adjusted data.
Source: Prepared and seasonally adjusted by Banco de México with data from INEGI. Data of Q2-2020 corresponds to labor indicators for Mexican states with an estimate using INEGI statistical models and, starting from Q3-2020, corresponds to the New Telephone Survey on Occupation and Employment (ENOE^{N}).

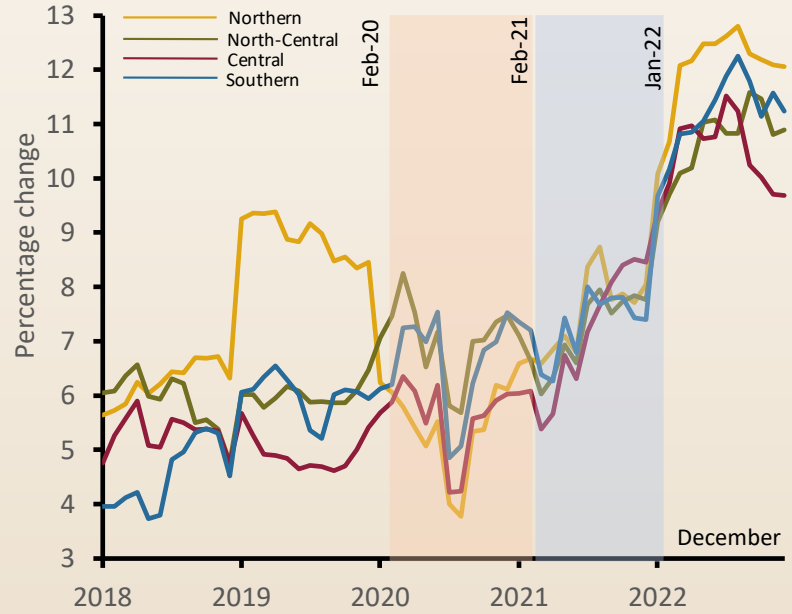
Estimation of Wage Indices that Control for Employment Composition Changes

- This box calculates wage indices that control for changes in employment composition for Mexico and its regions.
- Changes in employment composition generate fluctuations in the average wage that are not attributed to wage revisions.
- For example, if many low-wage jobs are lost, the average wage automatically increases, even though the salaries of employed individuals do not change.

Annual Percentage Change of IMSS-insured Workers' Average Base Salary



Annual Percentage Change of Wage Index Controlling for Employment Composition



Note: The wage index is constructed as a weighted average of average wages per employment cell. An employment cell is defined as a combination of the sector, type of work, and age group. The average wages of each cell are calculated by maintaining worker composition constant. To calculate them, workers who remain employed for two consecutive months are tracked, and the percentage change in wages for each cell is obtained. The weights for each cell are fixed and are given by the average share of employment in each cell relative to total employment from March 2019 to February 2020.
Source: Prepared by Banco de México with microdata from IMSS.

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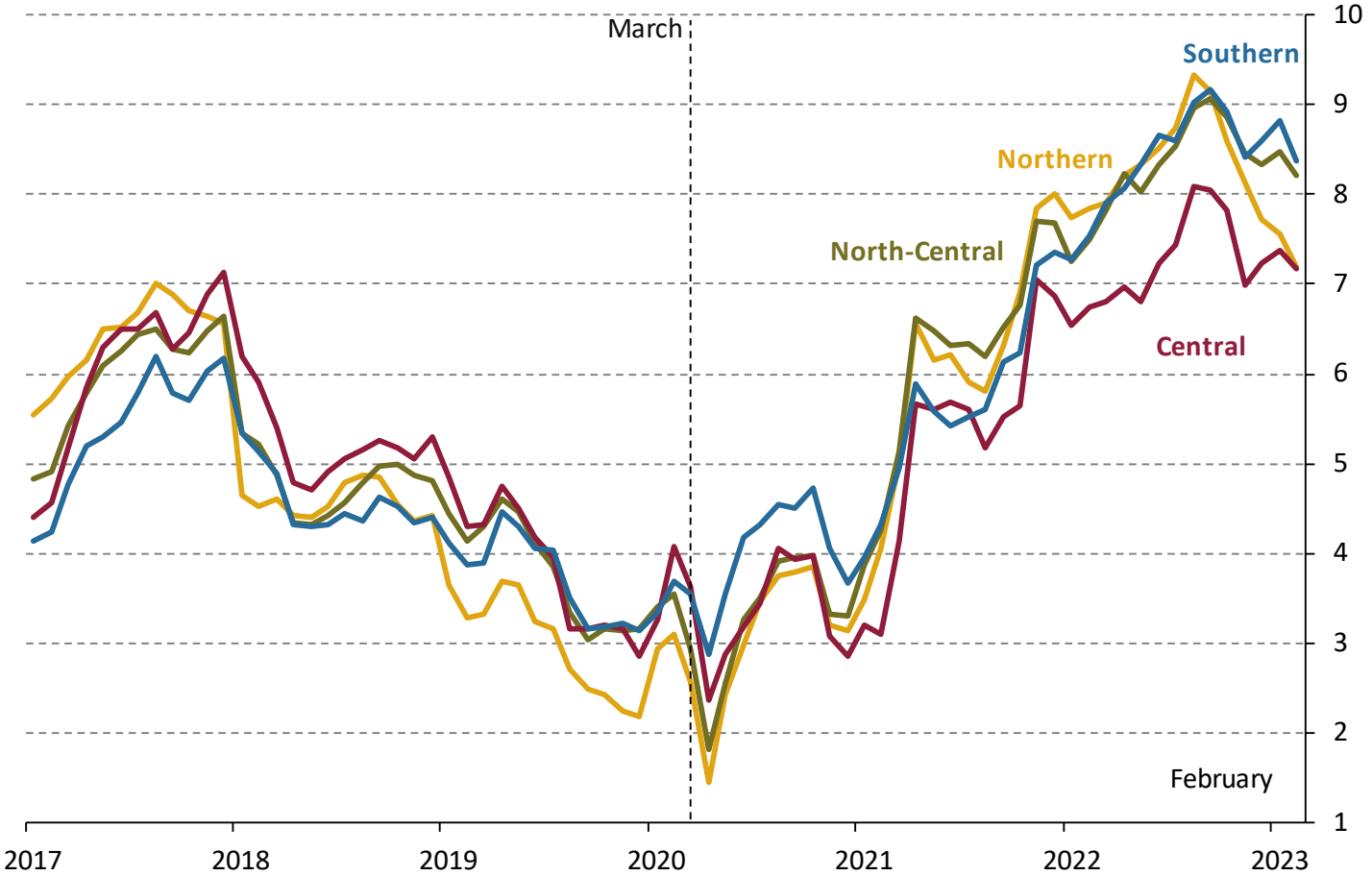
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Between Q3-2022 and Q4-2022, headline inflation decreased in all regions as a result of a reduction in the non-core component. The Central region continued registering levels of headline inflation lower than the rest of the regions.

Annual Headline Inflation by Region

Figures in percent



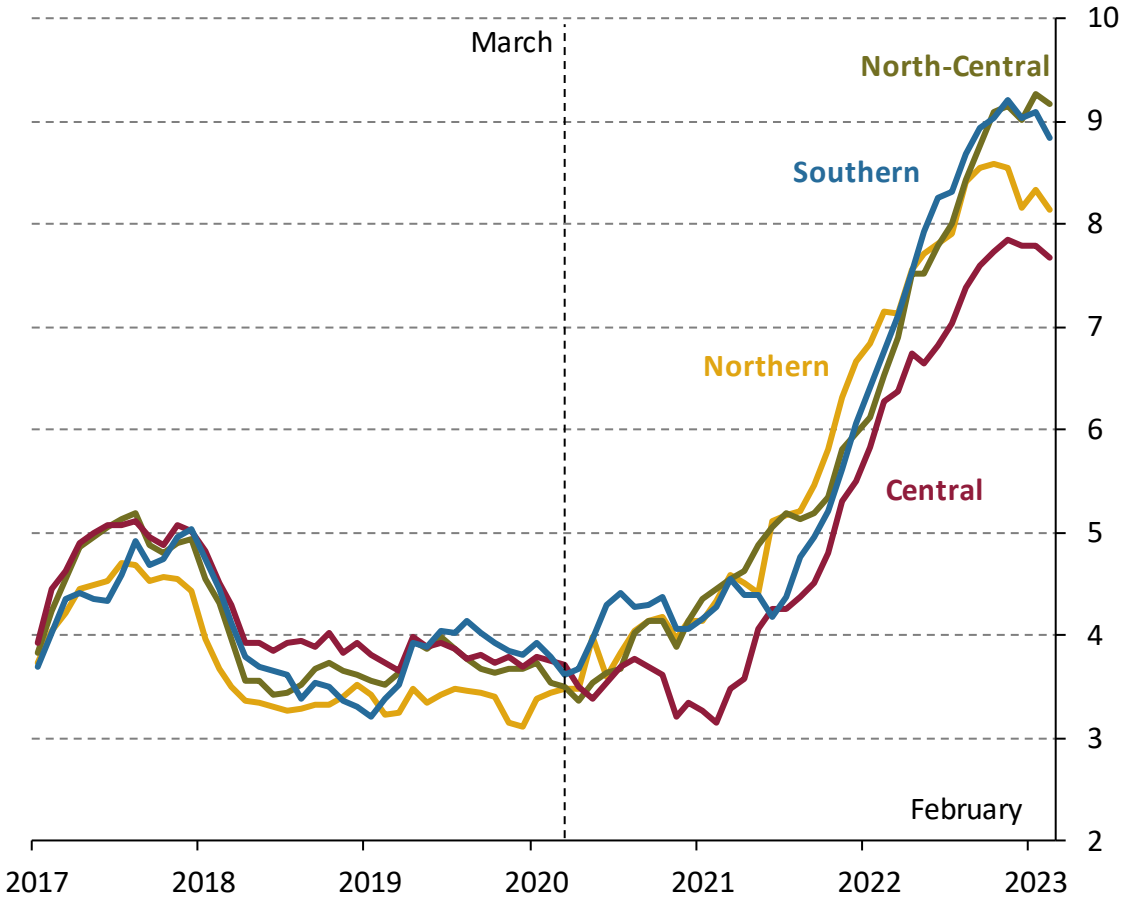
Source: Prepared by Banco de México with INEGI data.

Information published by Banco de México

In all regions, annual core inflation continued being subject to upward pressures in Q4-2022 and in the first months of 2023. Nevertheless, it has already interrupted its upward trend in all regions.

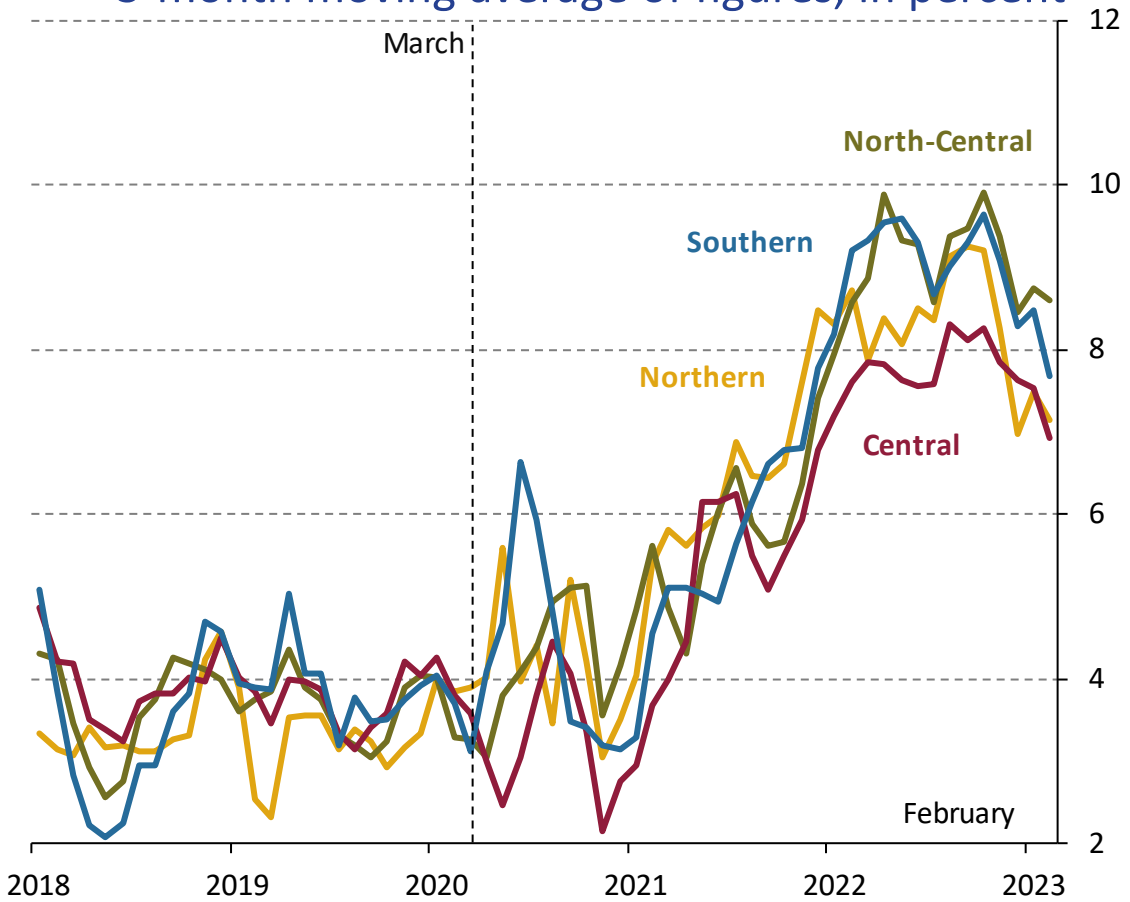
Annual Core Inflation

Data in percent



Annualized Seasonally Adjusted Monthly Variation of the Core Inflation Index

3-month moving average of figures, in percent

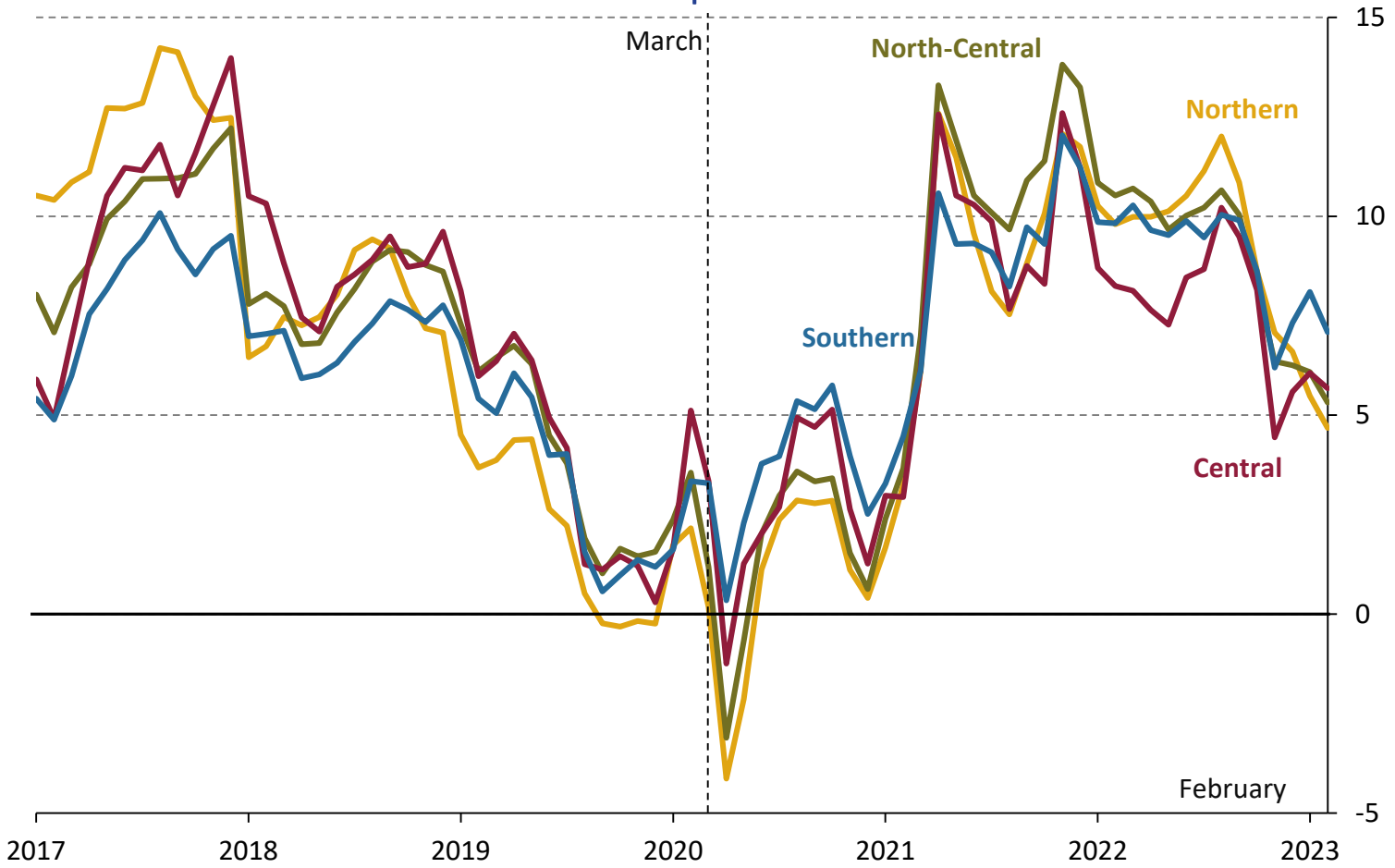


Source: Prepared by Banco de México with INEGI data.

During Q4-2022, in all regions, non-core inflation was below its previous quarter levels, which can be attributed to reductions in the annual inflation of agricultural and livestock products and of energy goods.

Annual Non-core Inflation by Region

Data in percent



Source: Prepared by Banco de México with INEGI data.

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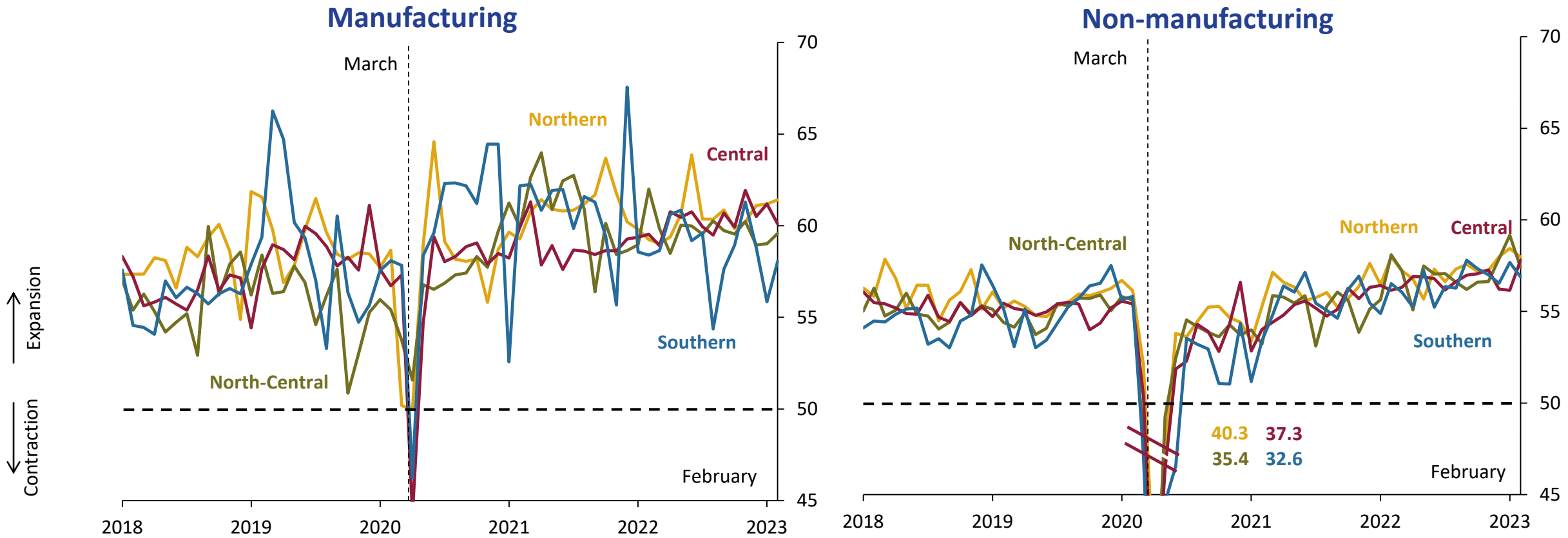
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III. Final remarks

Regional manufacturing and non-manufacturing orders' indexes remain in the expansion zone.

Regional Manufacturing and Non-manufacturing Orders' Index: Activity Outlook for the Next 3 Months

Diffusion indexes, s. a.

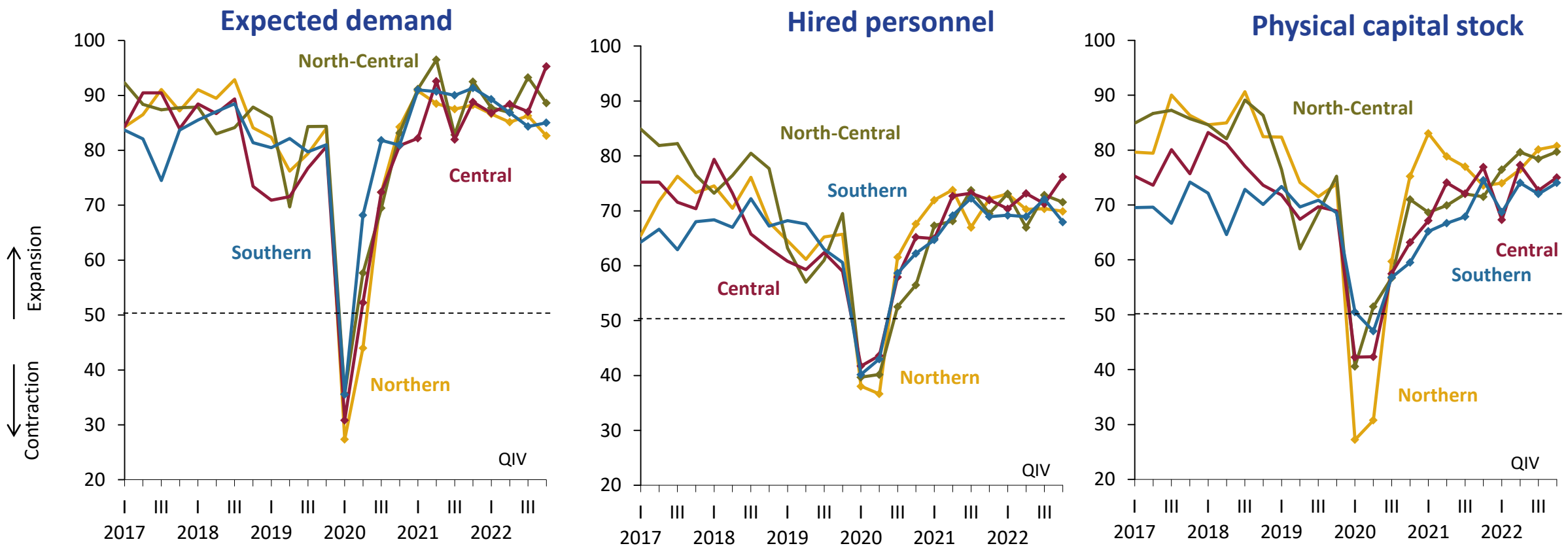


s. a./ Seasonally adjusted figures.
Source: Banco de México.

The diffusion indexes of expectations on demand, number of workers hired, and firms' fixed-asset investment remained in the expansion zone in all regions during Q4-2022.

Business Agents' Expectations: Demand, Hired Personnel and Physical Capital Stock, Next 12 Months [1/]

Diffusion indices

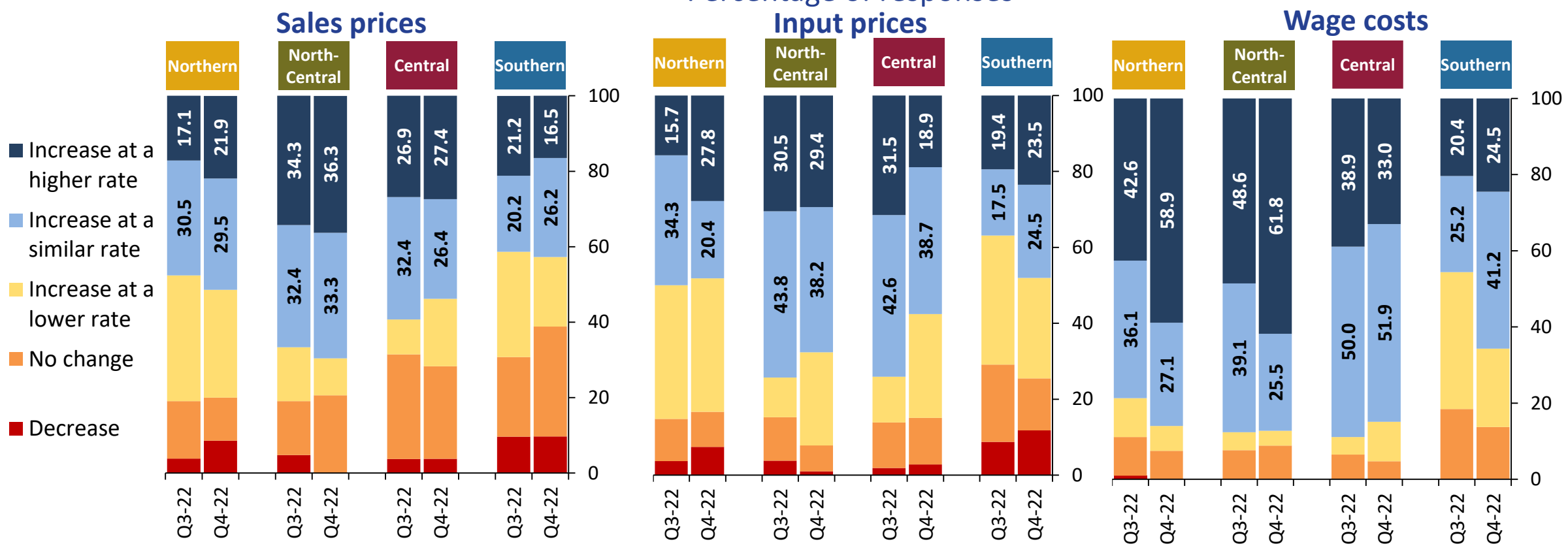


1/Results obtained from the questions: "With respect to the previous 12 months, how do you expect your sales volume to change over the next 12 months, how do you expect the total number of workers in your company to change over the next 12 months" and "With respect to the investment in fixed assets made by your company during the previous 12 months, how do you expect the level of investment to change over the next 12 months", included in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the end of the reported quarter. In the case of the fourth quarter of 2022, they were obtained between January 2 and January 26, 2023.

In all regions, the percentage of business agents that anticipate that their sales prices will rise at a similar or higher rate increased, as well as the percentage of those who expect their wage costs to increase at a higher rate, except in the Central region in both cases. The percentage of business agents who expect the prices of inputs they use to increase at a similar or higher rate decreased in all regions, except in the Southern region.

Business Agents' Expectations: Sales Prices, Input Prices and Wage Costs, Next 12 Months with respect to Last 12 Months [1/]

Percentage of responses



1/ Results obtained from the questions: "With respect to the previous 12 months, how do you anticipate sales prices in your sector to change over the next 12 months, how do you anticipate the prices of inputs (goods and services) used in your sector to change over the next 12 months, and how do you anticipate wages and salaries of workers in your sector to change over the next 12 months?", included in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the end of the reported quarter. In the case of the fourth quarter of 2022, they were obtained between January 2 and January 26, 2023.

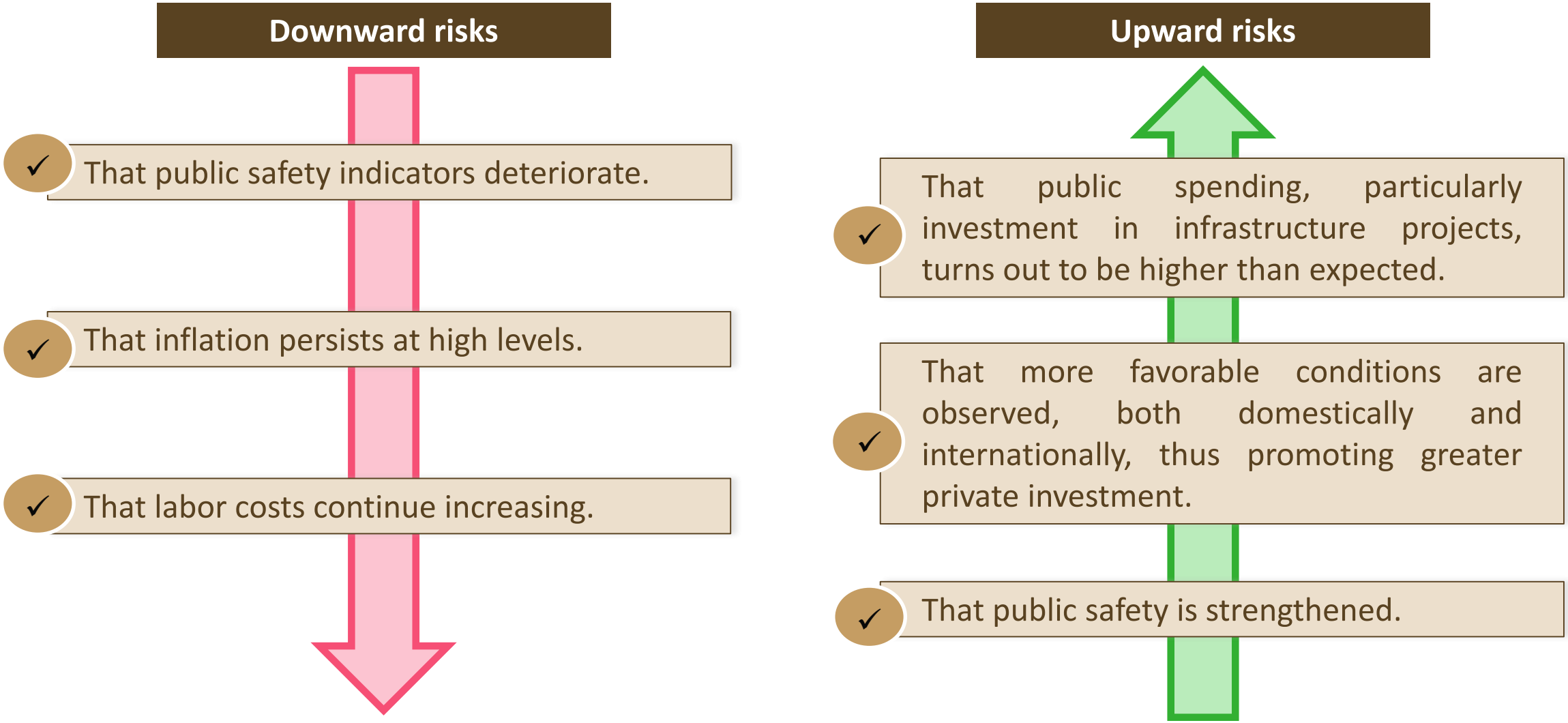
Main Responses of Business Agents when Asked About the Top Three Factors that Could Hinder Growth of Economic Activity in Their Entities in the Next Six Months

Based on information collected between December 1 and December 31, 2022 [1/]

	Northern		North-Central		Central		Southern	
	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses
1	Inflation	**40.8%**	Inflation	**39.8%**	Inflation	**36.4%**	Inflation	**41.1%**
2	Governance	**16.9%**	Governance	**19.0%**	Governance	**19.3%**	Governance	**21.9%**
3	External conditions	**16.5%**	Domestic economic conditions	**16.0%**	Domestic economic conditions	**16.6%**	Domestic economic conditions	**15.4%**

1/ Question: What do you consider to be the three main factors limiting the growth of economic activity in your state over the next six months? This question is similar to the one included in the questionnaire of the Survey on Expectations of Private Sector Economic Specialists. Figures for December 2022 were obtained based on information collected between December 1 and December 30, 2022.
Source: Banco de México.

Business Agents' Opinion on Risks to Regional Economic Activity (based on data collected between January 2 and January 26, 2023) 1/



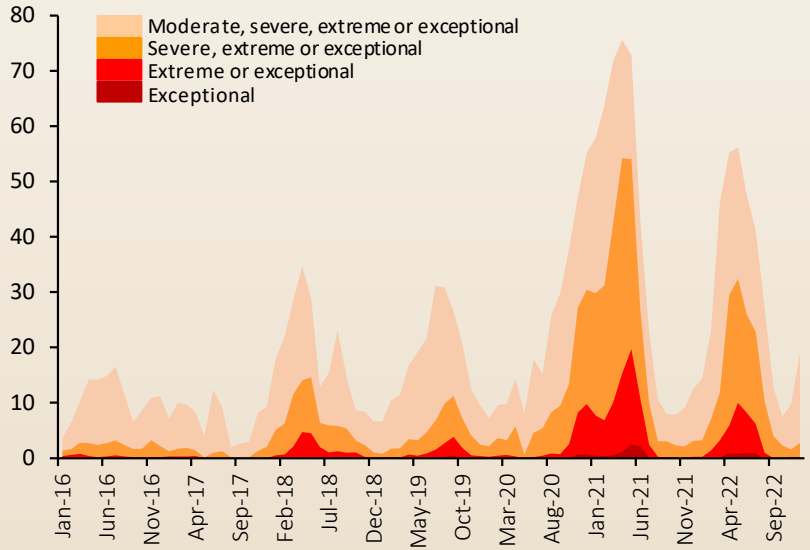
1/ Results obtained from the questions: "What are the 2 main events/situations/facts that if they were to occur would boost economic development in your state over the next 12 months?" and "What are the 2 main events/situations/facts that if they were to occur would limit economic development in your state over the next 12 months?", included in the interviews conducted by Banco de México between January 2 and 26, 2023.

Drought Exposure Index Calculation

- The drought exposure indices measure the level of impact on products included in the CPI that cannot be inferred from aggregate drought indicators. These indicators approximate the share of national production exposed to extreme, severe or exceptional drought.

National Area Affected by Drought

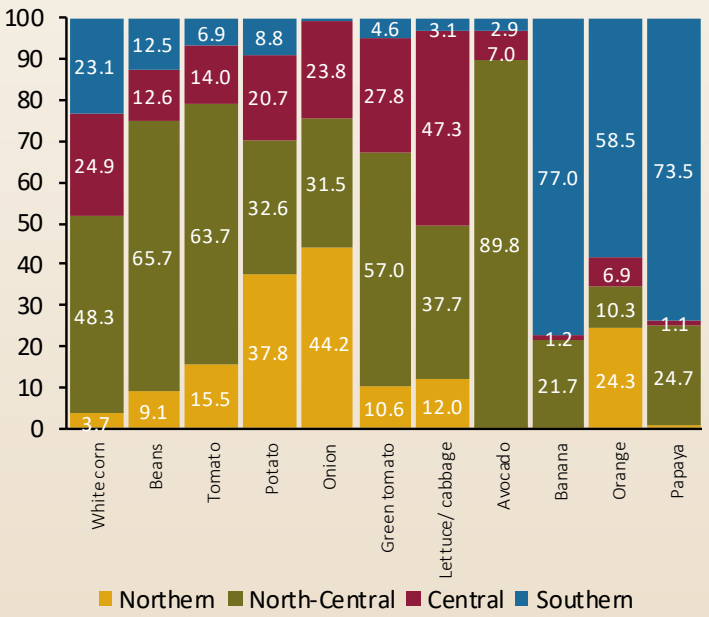
Percent



Source: Prepared by Banco de México with data from CONAGUA's Drought Monitor.

Regional Participation in Historical National Production, 2003-2021

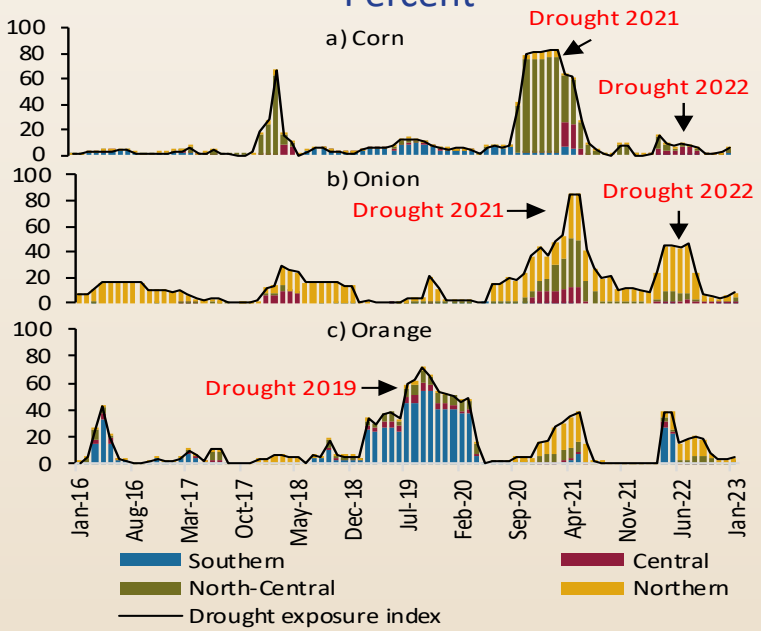
Percent



Source: Prepared by Banco de México with data from SIAP.

Drought Exposure Indices for Selected Products

Percent

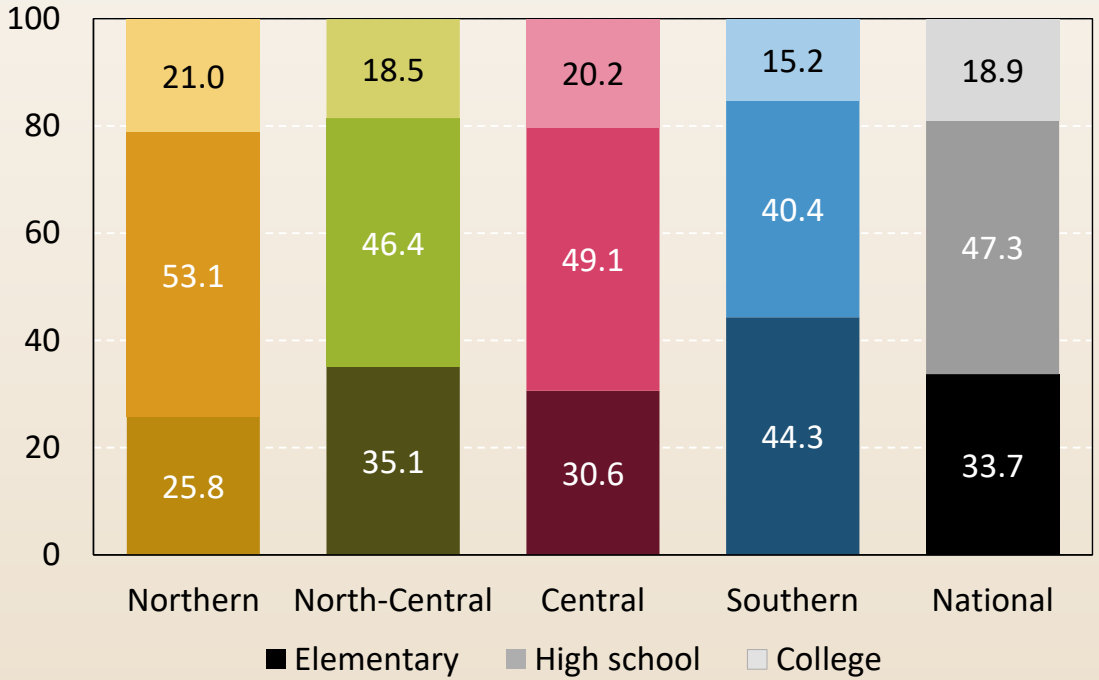


Note: The drought exposure indices indicate the share of each product's national production that is concentrated in municipalities affected by severe, extreme or exceptional drought.
Source: Prepared by Banco de México with data from SIAP and CONAGUA.

An Education and Productivity Model for Mexico's Regions

- This box uses a general equilibrium model to perform a counterfactual exercise in which **the educational levels of workers in the North-Central, Central and Southern regions match those of the Northern region.**
  - **The Southern region would benefit the most** by matching the educational level of its workers with those of the Northern region.
- The same model is also employed to estimate possible **long-term effects on per capita output** of the regions caused by the **adverse impact on learning after the lockdown during the COVID-19 pandemic.**
  - The **effect is heterogeneous among regions**, with the Central region registering the lowest impact.

Workers by Educational Level and Region in 2019
Percentage of total



Source: Prepared by Banco de México with data from INEGI for 2019.

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Final remarks

1 **Although the regional economies are expected to continue recovering, they will keep facing a complex and uncertain environment that poses significant challenges to growth. Among them:**

- ✓ **A weakening of the US economy**, which could particularly affect export-oriented states in the Northern and Central regions, or those that register a considerable flow of remittances or receive tourists from the United States.
- ✓ **That the pandemic and geopolitical conflicts continue affecting global supply chains,** thus limiting activity in those sectors and regions most vulnerable to a lower availability of inputs.
- ✓ **That adverse climate events or phytosanitary and zoosanitary emergencies materialize.**
- ✓ **That public safety conditions inhibit economic activity.**

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Final remarks

2 **To face these challenges, it is necessary to foster adequate conditions for the recovery of private investment and strengthen the factors that affect domestic sources of growth.** Within the framework of the USMCA and in the context of a global relocation of production processes, the following factors could support regional growth:

- **Strengthening the rule of law and public safety** would give greater certainty to companies, would facilitate their operations, decrease costs and could boost investment flows, not only in the regions that traditionally receive a greater share of these flows, such as the Northern and Central regions, but also in the Southern region.
- **Advancing in the development of regional financial markets** could also improve the conditions of firms' access to credit to facilitate financing of profitable projects.
- **The construction of infrastructure projects**, particularly those that improve regional connectivity with other markets, within and outside Mexico, that have the potential to attract a larger number of visitors to tourist destinations or that facilitate access to energy sources in an efficient and less polluting way, could encourage investment attraction.
- **Progress in controlling the pandemic and in correcting its effects on human capital formation** will contribute to a more robust reactivation of the regional economies and to reduce its possible consequences on growth potential.

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